



DENTISTRY'S *finest* CHROME ALLOY



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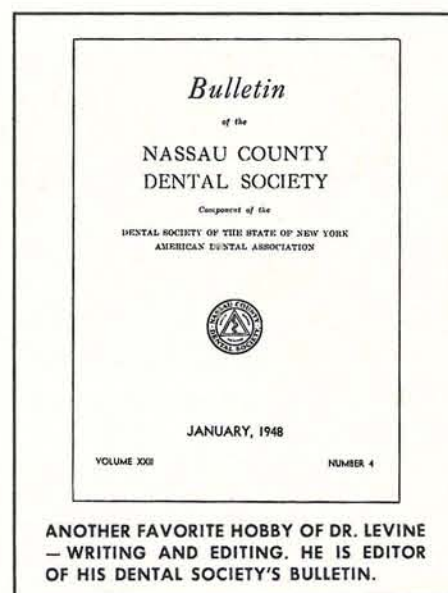
his school work, but after an extra year at school he finally graduated. Once he got his degree he believed his obligation to his father had been met. He never did practice dentistry. He went on the radio, where he was able to utilize all of his fine musical abilities, have a whale of a good time, and make a lot of money, besides."

Dr. Levine, therefore, advises his colleagues not to urge their sons too much to follow dentistry. "After all," he explains, "a father's profession or business should have no bearing on the son's choice. The advantage gained by taking over an established practice from a generous father may be quickly dissipated by a young man who has no natural liking for the work."

#### Vocabulary Tests

Word-association tests are used to determine whether a person has an objective personality or a subjective one; that is, whether he is on the extravert or introvert side. Tests are also made for right-and-left eyedness. A person who is right-eyed should use his right hand for certain operations, like eating and writing. If the child is a "cross-over" (a left-eyed child who uses his right hand), it usually indicates that he is normally left-handed but has been forced to change. In such cases, psychologists will usually advise the child to return to his left-handedness, because personality and emotional disturbances develop in "cross-overs."

One of the most important tests is the vocabulary test, something in the nature of an intelligence test. A selected group of words are used. Each word has a number which represents a value. Thus word number one is the simplest of all; number two is a shade less simple, and so on, up to word number, say 500, which would be almost impossible to use correctly in association. Each person has a word threshold. As Dr. Levine explains it: "Let's say my word threshold is number 386. This means that I probably know at least 90 percent of the words before 386 and would miss approximately 90 percent of the words after 386. It is a multiple choice examination. Strange as it may seem, each of us has a more or less fixed vocabulary. We can add to our vocabulary by intensive study, but in six months' we'll slide back to our normal vocabulary level. Even more strange is this: persons with the biggest vocabularies are not college professors, editors, writers, or teachers! The highest threshold group is made up of top-notch executives, which shows that the bigger your vocabulary the better are your chances for commercial success. By the



same token, educational background is of no significance in and of itself. Among the top leaders of industry and commerce are a number of men who have had little or no formal education. It would appear, then, that individuals of unusual ability have enough curiosity, drive, and catholicity of interests to inform themselves on a wide variety of subjects. They thus learn more about more subjects than other men and in the process build up sound, extensive vocabularies."

Dr. Levine has put to good use all of his aptitudes. He is not only a practicing dentist but is a professional writer as well. Besides writing and career counseling, his hobbies include photography, printing and chess. He is the editor of the *Bulletin of the Nassau County Dental Society*. He handles publicity for the Port Washington Education Association and the Port Washington High School Men's Association, two of the civic groups through which he serves his local community. But his greatest career and his greatest hobby is to see that Tommy Levine and Eric Levine, and as many other youngsters as he can assist, will get a scientific start in solving one of the most important problems every human being must face — selecting the one job, in the vast scheme of modern life, for which he is best equipped. Vocational guidance workers and career counselors preach the religion of labor, save men and women from the frustrations of failure, and guide individuals to useful and happy lives.

That's why Dentist Arthur H. Levine has one of the most important hobbies in the world.

## Your Next Ten Years, Doctor

Dentistry begins 1949 with the highest status the profession has ever enjoyed.

America's leading practitioners and authorities review the achievements of the last decade, which produced that status, and forecast developments in the decade ahead, in this issue of TIC. You will be heartened by that record and inspired by those prognostications.

One mark of dentistry's status today is the creation of the National Institute of Dental Research.



DR. WALTER E. BREHM

Although the Eightieth Congress authorized appropriations, it did not appropriate the funds necessary to implement the new Institute's program. However, TIC has received word from Representative Walter E. Brehm of Ohio, author of the dental legislation and a practicing dentist for 25 years, that he has "assurance from certain members of the Subcommittee on Appropriations that they will . . . in all probability recommend it (funds) as one of their first acts when Congress convenes in January 1949."

Dr. Brehm believes this program is "one of the greatest opportunities for rendering preventive dentistry . . . and if we can prevent dental caries, and associated ills, which this research program seeks to do, then much will have been accomplished for the health and happiness of human beings."

An ambitious goal, of course, but dentistry itself helped to set the goal. The American people have faith in dentistry, and propose to make available the research tools needed to realize one of the greatest health objectives in history.

Dentistry will work for a healthier, happier era, conscious of its great responsibilities as a science that has reached maturity and a health service that has become fully responsive to the needs of those it serves.

Your next ten years, Doctor, promise to be exciting and fruitful ones. May they be happy years as well.

J. S.

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Editor — JOSEPH STRACK

# American Dentistry

## A Record of Yesterday's Progress and a Forecast of Tomorrow's Developments

By J. D. LAWRENCE

American dentistry has just passed through one of the most fruitful decades in its history. What is more, the rate of progress in dentistry is accelerating. That is the overwhelming opinion of a group of leading dentists and dental authorities recently queried by TIC.

Says Dr. Basil G. Bibby, New Zealand-born Director of the Eastman Dental Dispensary and outstanding researcher in the field of caries prevention:

"The past decade will probably prove to be more significant to American dentistry than any decade since the one which saw the founding of the first dental school, the publication of the *American Journal of Dental Science*, and the formation of dental societies. The rate of progress is speeding up and, if present favorable conditions continue, will continue to do so. The fruits of research, increased post-graduate educational opportunity, and increased respect for dental science are only now beginning to manifest themselves."

A strong endorsement of this viewpoint comes from Dr. Allen O. Gruebbel, Executive Secretary of the Council on Dental Health of the American Dental Association. Writes Dr. Gruebbel:

"The last decade has been particularly fruitful in dental developments, more so than during any other period. The rate of progress in dentistry is speeding up as a result of greater emphasis being placed on dental treatment as a health service."

In the opinion of Dr. H. C. Pollack, editor of the *American Journal of Orthodontics*: "Speeding up is more manifest than in any other decade in the history of dentistry. Military dentistry added much to this."

Dr. H. Trendley Dean, Dental Director of the United States Public Health Service and a leading pioneer of fluorine therapy, believes that:

"Dental research is showing normal healthy

progress. Increased numbers of qualified young dental graduates taking graduate school training in the basic sciences should accelerate this progress."

### Scientific Status of Dentistry

What have been the major dental developments of recent years? Judging from the replies to TIC's queries, two accomplishments stand out above all others.

First is the *elevation of dentistry to a new and impressive scientific level*. Nearly every dentist queried expressed an awareness of such a change. Dr. Hamilton B. G. Robinson of Ohio State University, editor of the *Journal of Dental Research*, puts it in these words:

"I believe that the change of emphasis in dentistry, from the lip service to the biological and physical sciences to using the sciences as a foundation for dental practice, has been the most important single advance. This change in the attitude of mind of dentistry has been much more important than any single clinical or biological development."

Dr. Bibby keynotes the same idea:

"To my mind, the most significant development in American dentistry has been the growth of a scientific or biologic consciousness on the part of the profession. Naturally, this has not revolutionized dental practice but it has resulted in a tremendous expansion of research and a much more critical level of thinking amongst the progressive members of the dental profession than ever was the case before."

Dr. Pollack stresses the fact that "dental education has included careful training in the basic sciences, thereby putting it on a par with medical training."

The same general feeling of improved standards is expressed by Dr. Leon Lieber in terms of



BLOCKS ARE USED TO GAUGE ABILITIES AND CAPACITIES.

approach to one of the world's oldest problems — how best to use its human resources. "Just because it has a few bugs in it is no reason to question a system that has proved its value again and again," Dr. Levine explains. "After all, X-rays aren't infallible, either. A candle in the forest is a lot better than no light at all."

### Playwriting to Dentistry

Although Dr. Levine believed there was something wrong when he switched to dentistry from playwriting, aptitude testing later in life showed some interesting explanations for his indecision. He was tested for digital dexterity, tweezer dexterity, number memory, accounting aptitude, tonal memory, pitch discrimination, creative writing, proportion appraisal, structural visualization, inductive reasoning, observation, and other factors. The results showed that he was fitted for dentistry but had other aptitudes that were not being utilized. One was creative writing and another was tonal memory (music). Psychologists advise the use of as many aptitudes as possible in everyday life because failure to do so often leads to personal disharmony or maladjustments. When such abilities cannot be exercised in one's work, they should be given expression through hobbies — which explains the mental-hygiene value of hobbying. Individuals who have not been tested for their aptitudes often instinctively turn to hobbies which permit them to use such abilities, and they are usually surprised to discover their dexterity.

### A Case History

Parents can be misled by the interests of their children and, in turn, can mislead their children into pursuits for which the youngsters seemingly are fitted but actually are not at all equipped to follow. This fact is demonstrated by an anecdote recited by Dr. Levine. A nephew of his had only

one sustained interest as a child — building model airplanes. The child's parents were certain he should follow an occupation that called for manual dexterity, even though they had hoped he would become a professional man. When they spoke to the principal of the high school about it, he recommended an aptitude test. The examination revealed that the child was best fitted for a teaching career, especially in English or history. The guidance experts went so far as to recommend completion of the child's education at a particular school, the University of Wisconsin. The youth enrolled there. Today he is teaching English in a college and loves it. "Without that test," Dr. Levine comments, "that boy might be a frustrated mechanic without a future, condemned to drudgery until he found his real place in life — if ever."

### Will Your Son Be a Dentist?

"Very often a student will enter a field for which aptitude testing shows he is unfitted," Dr. Levine points out. "Parental pressure, a current business opportunity, or a false, glamorized concept of some profession or activity, may prompt such a decision. The boy may become successful, but he would have to work harder at it than those who are naturally equipped for the work, and, of course, he would have to compete with those better-equipped persons who can do it easier and better than he can."

Dentists will want to pay particular attention to this story: "I have a dentist friend who insisted that his son study dentistry. The boy obviously had no interest whatsoever in the profession. As a matter of fact, he preferred playing a saxophone, going to Broadway shows, and attending movies. His father regarded all this as nonsense, and demanded that his son be a dentist. The boy went to dental school under pressure. While at school he made a small fortune playing in a dance band. His musical activities affected



DR. LEVINE OPERATING HIS PRINTING PRESS.

## R<sub>x</sub> for Relaxation

DENTIST ARTHUR H. LEVINE—CAREER COUNSELOR

By JOSEPH GEORGE STRACK

Dentist Arthur H. Levine has one of the most important hobbies in the world—he helps youngsters choose their careers in life. To a boy or girl bewildered by the teeming complexities of modern industrial civilization, million-a-year entertainers and bread-and-butter scientists, and a thousand-and-one job classifications—the modern career counselor is friend, guide and philosopher. Vocational guidance has replaced yesterday's hit-or-miss methods of "getting a job." If you have youngsters of your own, or are interested in the destiny of other boys and girls, Dr. Levine is your man.

"I finished high school and four years of college and still did not know where I was headed," Dr. Levine explains. "At the eleventh hour I switched from the Baker School of Playwriting at Yale to the School of Dentistry at Penn. Obviously, something was wrong. It was with the hope that I might save some children the uncertainty that dogged me that I became interested in this work."

When he spoke with hundreds of high-school students in his community, Port Washington, Long Island, and learned that three out of four of them had no idea where they were headed, Dr. Levine promptly offered his services to the school's vocational-guidance director. He now works closely with the students as a volunteer career counselor.

"I have two boys of my own whom I want to



APTITUDE TESTING IN SCHOOL. DR. LEVINE IS AT THE LEFT, ASSISTING THE SCHOOL COUNSELOR.

set straight," he says. "I well remember how many college students of my time chose courses in school, and courses in life, purely on the basis of whim or chance. One of the greatest decisions that each of us must make is to choose that profession or occupation for which he is best fitted and in which he can make his fullest contribution to society. The child who chooses wrongly, or is deprived even of the opportunity to choose, may find himself a misfit all through life. This is not only a personal tragedy to him and his family but a social debit that affects, in some measure, the welfare of all of us."

### Vocational Testing

Modern vocational guidance techniques include ways and means of locating and identifying the interests and abilities of individuals—inborn aptitudes as well as acquired abilities. Even though youngsters lack experience, and thus development of their abilities, it is possible to discover their general and special abilities through psychological tests. Other testing includes use of trial methods in shops and classrooms, which offer samples of work in a wide variety of fields, and visits to places where students can see and observe men and women working at various arts, sciences and trades. Counselling today is predicated largely on scientific data—carefully compiled records and test results.

"In Port Washington we have a good guidance department which tests the children all the way up the line from grade school through high school," Dr. Levine points out. "By the time the child is in high school, a mass of evidence has been accumulated about him. Aptitude testing does not always indicate exactly what specific speciality, or even general field, the youngster should enter, but almost invariably it will tell him what not to do. That information alone is priceless advice which can save a child from experiencing years of failure, frustration and heartache." Vocational guidance is no sure road to success, fame and fortune. Sometimes it doesn't work, or it produces questionable results. But, on the whole, it is a sensible, scientific

expanded teaching and research facilities. Dr. Lieber lists as one of the most important advances in dentistry of the last decade the "attraction of moneyed interests for the promotion of dental teaching and research; e.g., appropriation of two million dollars by Congress for a dental research center and \$750,000 per year for dental research purposes, various private grants to dental colleges, and so forth."

Pointing up this change of status, Dr. Lieber adds: "Dentistry has suffered lamentably in the past from lack of funds, promoting almost all research from its own meager resources."

### Combating Caries

The second major advance of recent years has been the *development of effective means of combating caries*. Almost unanimously, the dentists cite this as a prime achievement of recent dental research. The topical application of sodium fluoride is, of course, the most successful technique in this field, reducing caries as much as 40 percent in children. Dietary control methods have also proven definitely effective, although it is not likely that they can ever be applied on a large scale. Another important contribution is the lactobacilli saliva test for diagnosing caries susceptibility.

Among the various caries-control techniques which look promising but are still more or less in the experimental stage are the fluorination of water supplies, ammonium-ion dentifrices, chemical impregnation of teeth (as described below), application of anti-bacterial agents such as penicillin or solution 58, use of vitamin K in a chewing gum base, and the possible addition of glycerol aldehyde to sugar at the refineries. In the long run, it is possible, even probable, that one or more of these techniques will outshine and perhaps even outmode the sodium fluoride treatment.

One authority queried by TIC—Dr. Bernhard Gottlieb, Director of the Department of Oral Pathology and Dental Research at Baylor University—believes that a definitive solution to the caries problem is already at hand. Dr. Gottlieb states as follows:

"Since the sixteenth century, it has been thought that dental caries is mainly caused by acid action. The explanation of the source of the acid underwent some minor changes but the principle remained unchanged. It can now be stated, however, that caries is a proteolytic pro-

Dr. Hamilton B. G. Robinson



Dr. Robinson has been a professor in Ohio State University's College of Dentistry since 1944, and also serves as director of the college's post-graduate division.

He is the author of numerous research papers; is editor of the *Journal of Dental Research* and associate editor of the *Bulletin of the Columbus Dental Society*; and has served as associate editor of the *Journal of the Missouri State Dental Association* and editor of the *American Academy of Oral Pathology*.

(Photo by Ohio State University)

cess, the opposite principle of acid action. If caries were an acid action, the greatest damage would be done to the enamel, which is most sensitive to acid. Yet every dentist knows that the caries process spreads through the dentin, undermining the resisting enamel, and that he cannot prepare a single cavity without having to chisel away the caries-resistant enamel borders.

"It now appears that caries is produced by the invasion of non-obstructed organic invasion roads in the enamel (the lamellae and enamel fibers) and that the action of fluorine is accomplished by the obstruction of these roads by the formation of calcium fluoride, an action which is reported successful between 30-40 percent.

"Based on the new ideas on the pathology of dental caries, an impregnation with a combination of metallic salts was recommended which produces a 90 percent reduction of dental caries.

Dr. Bernhard Gottlieb



Dr. Gottlieb is Director of the Department of Oral Pathology and Dental Research of the Baylor University College of Dentistry.

This combination (40 percent zinc chloride, 20 percent potassium ferro cyanide, and 10 percent silver nitrate) desensitizes dentin, which is the main test for caries prophylaxis since it indicates obstruction of the dentinal tubuli. Pathology has proved that it is easier to obstruct the dentinal tubuli than the invasion roads in the enamel. The 2 percent sodium fluoride does not obstruct the dentinal tubuli, having no desensitizing effect at all.

"We may say that the caries problem is now solved in its major aspects, with a number of side problems still awaiting solution."

Probably not every dentist will agree in all respects with Dr. Gottlieb, but as an outstanding dental scientist his opinion certainly commands respect.

#### Highpoints of Last Decade

Among the other important advances that have taken place in dentistry over the last decade, the following must certainly be mentioned: improvements in local anesthetics; the development of promising new techniques for

reducing pain and discomfort during cavity preparation; the use of acrylics for dentures, crowns, and bridgework; the development and use of penicillin; more and better dentistry for children; standardization of materials and techniques; and the increased use of X-rays for diagnosis. Although there is no agreement on the relative importance of these items, and although none of them quite ranks with the two major developments already named, they all represent outstanding contributions to dentistry.

For a more detailed insight, let's look at the lists of important developments drawn up by individual dental authorities. Dr. Donald A. Wallace, Secretary of the Council on Dental Therapeutics of the American Dental Association, selects the following as the most important advances in dentistry during the last decade or so:

Discovery of therapeutic uses for the fluorides. Refinements in the manufacture and distribution of local anesthetics intended for injection. Development of purified antibiotics, especially penicillin, and the application of penicillin clinically. Development of quaternary ammonium germicides and their application clinically. Development of dentifrices of potential clinical value. Development of diagnostic tests for dental caries activity. Development of improved drugs and technics in endodontia. The general trend toward more enlightened and effective use of drugs.

Dr. J. M. Wisan, Director of Dental Health Education of the American Dental Association, selects the following:

"The use of topical application of sodium fluoride; more emphasis on dental care for children; more widespread knowledge of the primary (deciduous) teeth; improvement of artificial dentures; the use of acrylics in bridgework; the improvement in dental schools; the wider use of X-rays for diagnosis; the use of lactobacilli saliva test for determining caries susceptibility; improvement in dental health education material; standardization of material used in fillings, bridgework, and dentures."

Dr. Allen O. Gruebbel states:

"In my opinion, the most important advances in dentistry during the last decade were improvements in the use of local and general anesthetics; the importance that has been placed on dentistry for children and improved operative technics in this field; and the expansion of dental research,

corridors, inspired me with awe. This, then, was the World of Science with its research laboratories, hospitals and schools.

The elevator which deposited us at Floor F left us to traverse a dim antiseptic corridor with closed doors. One of these had a lighted sign reading "Basal Metabolism." Months later I learned to define the term but it had become a symbol.

*Our professors* belonged to this exalted world of Science. That they were probably human beings did not occur to me. There was Dr. Henry Sage Dunning, who lectured to us in terse, clipped sentences sometimes approaching shorthand. There was Dr. Charles Bodecker, who gave us the elements of histology in a deep, ministerial voice. Then there was Dr. Moses Diamond, whose lectures on dental anatomy were exactly like his text; but you didn't dare to doze because you needed all the help you could get for the next morning's session with a millimeter gauge and a small block of wax. Toothcarving was my first and only attempt at sculpture . . . The anatomy and physiology lectures in the big amphitheatre scared most of us to death because Dr. Joseph Surls was in the habit of popping questions on an assigned chunk of reading which would have taken all day and night to digest. He was quite a taskmaster and he could be sarcastic on occasion. Dr. Karshan was hard to follow but he was kindly and sympathetic when we failed to understand his learned discourse.

It was a swift — too swift — indoctrination into the realm of biological science. If manikin training was tedious and toothcarving was arduous, the lectures of these brilliant men kept the imagination stimulated. Before we knew it, the theories were supplemented with clinic practice on live patients.

My first patient was a girl-student at the old Haaren High School, at 59th Street and 10th Ave. The clinic had been set up in a greenhouse-like structure which was the biology lab. It was cold, and we were permitted to wear a white sweater *under* our uniforms, if necessary. The girl was blonde, Polish and of a stolid nature — fortunately for her because it took me three mornings to remove a little "chromogenic" stain. She confided to me that her mother hadn't made her clean her teeth since the note came home saying she could have it done free in school! . . . It seemed to me that someone was always faint-

ing or vomiting at these clinics, not the student-hygienists but our adolescent patients. Whether from fear (little did they know we were the ones who were afraid) or from the awful combination of camphenol mouthwash and dyclosing solution which permeated the place, is not a matter of record. Anyway, Miss Hollis was in charge and handled all emergencies in a way that inspired confidence.

*The clinic* on the Columbia Campus (in the Physics Building) proved to be the most agreeable. There we had students like ourselves to work on, and quite a few came from the International House. It was a small set-up, and under the quiet supervision of Miss Walls there was no tenseness.

*Brief weeks* in Radiology and Oral Surgery were looked forward to eagerly, though heaven knows we were probably more trouble than we were worth to the busy nurses and technicians. My most vivid recollection of Oral Surgery is of washing trays with acid which almost burnt your eyes out, and of picking up, the first day there, a mass of freshly autoclaved sponges with my bare hands. In Radiology it was better because you were soon allowed to take pictures, and if they weren't perfect they could be retaken without jeopardizing the life of the patient.

*Elgar's Pomp and Circumstance* is a march which probably many graduates of many schools can never hear without recalling the exciting moment of commencement. Two members of our class played the march as a duet while the rest of us filed down the aisles of the old McMillin Theatre at a slow, rhythmic pace. We had to speed up, though, near the end, almost hurrying to our seats on the stage as the duo played faster and faster, each trying to keep from lagging behind the other. Fortunately for us, Elgar had written a spirited piece of music to begin with.

*It was 1931* and the Depression had set in in earnest. Only a few of us graduates knew where we were going to get a job. Dr. Hughes was not encouraging. We were told that a starting salary of \$25 a week was the ideal to aim at. Many a girl settled for \$15, did assisting, laboratory work, cleaned the office or did whatever else was required in order to get a toehold of experience.

(Note to inquiring readers: Mrs. Isabell Kendrick, 21 Standish St., Springfield, Mass., is the able editor of the *A.D.H.A. Journal*.)

# The SHARP EXPLORER

By SHIRLEY EASLEY WEBSTER, B.S., R.D.H.



What better time than the beginning of a New Year to indulge in a few reminiscences? And surely when this New Year of 1949 ushers in that frowned upon phrase and phase of one's life known as Middle Age, one can be forgiven for memoirizing.

It was lovely September weather back in the fall of '30. Some 50 girls had registered up at the Columbia-Presbyterian Medical Center for the Oral Hygiene Class, and we were one of them — fresh from the suburbs, under-age, bookish, still in the midst of hefty adolescence. Dr. Hughes — very much on deck then with her pendant jade earrings and dazzling coloring — had interviewed mother earlier and decided that ours was the very background for a dental hygienist — a dentist's daughter with a good scholastic record and the required courses in chemistry. No aptitude tests in those days; you went on your record. The system was far from infallible though. Several girls flunked out by midyear — one in particular to whom, we remember, it was a personal tragedy. She was left-handed and had great difficulty in manikin training. There must have been other factors, too, but we didn't know them.

Dr. Hughes took us under her wing as the kindly matron of a reformatory might welcome a

motley collection of new charges. She must have seen the social immaturity of some of us and the sophistication of others in the group and wondered what she was to do about the mixture. She had a fussy anxiety for us, knowing, as we did not, that dental hygienists were still in the process of proving themselves worthy. But her attitude was a positive one. Her aim was clear — that each one of us should do her proud. She had ready answers for everything from the correct weight of our white stockings to the best technique for removing green stain from a child's teeth. During the year she gave us a series of lectures entitled "Oral Hygiene." It was a class which came directly after lunch. I can see her now, starched, immaculate, and completely humorless (on these occasions), delivering a very dry lecture which we were required to copy down almost verbatim. There were long soporific silences during which the scratching of 50 pens catching up with her dictation was the only sound in the room . . . On social occasions she was the essence of vitality and good cheer, especially in later years at the alumnae teas. You could see she loved her girls better after they had been safely launched in professional life. They would crowd around her with genuine affection. She often mistook a name but never a face. When asked about her own health, the reply was always the same: "Like a million!" She certainly looked it too.

Our uniforms then were really something — an oversize poplin bag with buttons all down the back, a round collar, and a wide belt which was supposed to draw all the excess material into the proper places. If a girl had a graceful figure no one would have dreamed it; and if she hadn't, well, only memory could soften the picture. But compared to the Hollywood version of a nurse's uniform, I am inclined to think Dr. Hughes erred in the right direction.

The atmosphere of that dream-like structure on the banks of the Hudson was strange. Its sounds and smells, the busy clinics where the dregs of the metropolis came, and the long waxed silent

particularly in the cause and prevention of dental caries."

Dr. Kurt H. Thoma, Professor of Oral Surgery, Emeritus, and Brackett Professor of Oral Pathology at Harvard University, cites two specific technical advances:

"The use of fluorine for local application and experiments with fluoride drinking water seems to give promise to the control of dental caries.

"The oral and maxillo-facial surgeons in the war have developed new, excellent methods for the restoration of badly mutilated jaws and faces."

As significant general developments, Dr. Thoma cites the following:

"The war and the excellent dental care that was given by the armed services made people dental-conscious.

"During the last few years, a much closer relationship with medicine has been accomplished for the benefit of the patients with dental infections causing systemic diseases and the treatment of symptomatic mouth lesions by means of general therapy such as vitamins and treatment with the sulfa drugs and penicillin.

"In my specialty the American Board of Oral Surgeons, which was created two years ago, has certified oral surgeons and thus is protecting the public so that they can get certified men to take care of them."

Dr. Chester J. Henschel of New York City, inventor of the thermal control apparatus for dental drilling and currently engaged in research on ammonium-ion dentifrices, lists the following important developments (but cautions that they are not necessarily in order):

Use of penicillin. Acceptance of thermal control. Widespread use of hydrocolloids. Introduction of alginates. Use of acrylics for denture materials, artificial teeth (anterior especially), and as veneer crowns. Improvement in color of artificial teeth. Widespread use and lower cost of diamond stones. Carbide bars. Sodium fluoride treatment, both topical and in the form of fluorinated water supplies. Gottlieb impregnation. Development of ammonium-ion dentifrices. Hot oil for sterilizing handpieces and contra-angles. Oxidized cellulose for hemorrhage. The negative theory of diet for controlling caries.

Dr. Leon Lieber believes that the four most important advances in dentistry in the last decade are:

"Standardization of materials and techniques by the A.D.A. Research Commission in conjunction with the National Bureau of Standards. Development of definitive means of caries control (diet, fluorine, ammonium-ion dentifrice, chemical impregnation of tooth surfaces). General acceptance by profession and public of use of periapical and bite-wing radiographs in routine oral examinations. Attraction of moneyed interests for the promotion of dental teaching and research . . ."

Other developments singled out by Dr. Lieber are: "Introduction of plastics for denture bases,

Dr. Kurt H. Thoma



Dr. Thoma is Professor of Oral Surgery, Emeritus, and Brackett Professor of Oral Pathology at Harvard University. He is also Hon. Professor, Faculty of Odontology, San Carlos University; Lecturer in Oral Surgery, Graduate School of Medicine, University of Pennsylvania; and a member of the Board of Consultation, Massachusetts General Hospital.

teeth, inlays, etc. Widespread use of local anesthetics in operative dentistry. Thermal control in operative dentistry. Intense new interest in orthodontia by the general practitioner, which may well take much of the initiative in this field from the hands of the specialists."

#### Predictions of Things to Come

So much for the outstanding developments of the past decade. Now, what about the future? What new developments can be expected in the years just ahead? Again, judging from the replies to TIC's queries, two items stand out.

First is the probability of the *mass control of caries*. Says Dr. Hamilton B. G. Robinson: "I may be over optimistic, but I believe that within the next decade the caries problem will be solved and there will be good, easily applicable methods available for the reduction of caries on a mass population basis."

Dr. H. Trendley Dean foresees the "demonstration of the possibility of partial control of dental caries on a communal or mass basis."

Dr. Lieber predicts the "development of means for the mass prevention of dental caries as a public health measure (fluorinated water, topical application of simple medicinals by trained assistants, etc.)."

A majority of dentists queried make similar predictions, and only two restrict their forecasts to the fluorination of water supplies.

The second prediction advanced by most of the dentists queried is the *development of an effective treatment for periodontal disease*. The most interesting statement in this connection comes from Dr. Gottlieb:

"Concerning periodontia, one half of the problem is solved. It has been proven that neither traumatic occlusion nor inflammation can produce pockets. Only the deterioration of the cementum surface invites a downgrowth of the epithelium, the prerequisite for pocket formation. This deterioration of the cementum surface appears to be connected with trouble in the ovaries and pituitary gland, which is why women are affected with periodontal trouble far more than men. Here a lot of work still has to be done.

"The second half of the periodontal problem consists of finding a way to produce cementum deposition below the epithelial attachment. This problem is now being worked on by Dr. Agnew

and myself. In the natural obstruction of the invasion roads in the enamel, the saliva of caries-immune people obstructs them by deposition of calcium salts. In caries-susceptible people, the saliva is apparently deteriorated, not being able to perform this obstruction. We make a short cut, obstructing these roads by precipitation of a water-insoluble metallic salt. We hope to succeed in making a similar short cut in periodontia. Some glands of internal secretion in charge of the continuous cementum deposition fail to function properly and we hope to be able to produce such new cementum deposition without trying to interfere with the problematic internal secretion gland, a method which at present seems hopeless."

No other prediction is agreed on by a majority of the dentists queried, although several foresee the further elimination of pain and discomfort during cavity preparation. The latter may come about through improvements in anesthesia or through the wider application of thermal control. Or, the perfection of the airbrasive apparatus and or the supersonic drill, may render the conventional dental drill obsolete.

To round out the picture, let's look at some individual predictions. Dr. Donald A. Wallace believes that the following new developments are likely to occur in the near future:

Better measures for caries prevention, with broader clinical application and consequent reduction in caries attack rate. More emphasis on orthodontics and prevention of periodontal disease. Still better local anesthetics. Better analgesic drugs. Improved methods for cavity preparation, which will tend to make this procedure more comfortable for the patient. Expansion of dental research and better correlation of research activities.

Dr. Kurt H. Thoma believes: "There is a good chance that the further development of antibiotic substances will aid in the control of dental and oral diseases and that new light will be thrown in the future on the cause of such mouth lesions as periodontal disease, carcinoma, and other malignant tumors."

In the opinion of Dr. Gruebbel: "The new developments in the future probably will be in the field of improved methods for preventing dental caries on a mass basis as, for example, the fluorination of public water supplies; new methods of preventing periodontal disease, particu-

83. The dental waiting room is a public place. While the dentist can choose those patients he prefers to work for he cannot control which persons will enter his waiting room. It is therefore important that in her role of receptionist the assistant be adroit, tactful, friendly, and courteous to all persons, who enter. (e.g. man with brief case.)
84. He must constantly search for facts in figures accumulated by his own staff based on the various procedures of that one establishment. Other men's figures are valuable for the purpose of comparison.
85. Let him definitely realize that satisfied patients are always his goal—his capital stocks and that their good-will is his most valuable asset in perpetuating his practice. (The advertiser must depend upon new patients—the ethical man literally stands upon his record.)
86. He should accumulate a "cash reserve" equal to two months gross cash income and never lessen this cash position.

#### FACTORS HAVING TO DO WITH HIS PROFESSION

87. He must read a general selection of the current dental literature.
88. He must be willing to give of himself to the advancement of his profession.
89. Do everything possible to develop the professional personality his ideal would have him be.
90. It is important that the teeth of his family, his assistant and himself bespeak good appearance and care.
91. He should be a member of a study group which has regular meetings and interested in the investigation of a particular phase of dentistry, (other than practice management).
92. He should be a member of local, state and national dental associations.
93. He should develop an ability to speak in public with confidence and convincingly.
94. A dentist must have pride in the profession he has affiliated with and made a career. In this manner he becomes a respected part of society at large.
95. Provide for his constant improvement by setting aside a small sum per month for intensive post graduate work each five years.
96. He must read a general selection of literature to include current events, financial and fictional material. This makes him a well rounded person in a mixed group.

#### FACTORS HAVING TO DO WITH HIS RETIREMENT PROGRAM

97. His insurance account must be well rounded and protect everything it can.
98. He must organize a retirement program which by its establishment early in his productive years will become complete at an arbitrary age thereby lessening his responsibility as his physical energy is lessened.
99. His investment should not be speculative but rather of the "safe and sure" denomination. Examples: insurance, home owning, annuities, first grade bonds, well chosen common stocks.
100. He must always remember that success is a continuous journey, never a destination.

(TIC is grateful to Dr. James and The Journal of the Canadian Dental Association for permission to print this useful material.)



### The Facts About Chewing Gum

By CHARLES A. LEVINSON, D.M.D.

People chew gum as a nervous release, for a thirst quencher and to sweeten the breath. But gum chewing can be overdone, particularly from a dental point of view.

I recently examined a 20-year-old patient whose gums were markedly receded. A condition resembling advanced pyorrhea had been brought about by her excessive gum chewing.

That, of course, is an extreme case. But take thirty movements of the jaws per minute as the average tempo, and four hours a day, five days a week, as par for the chewing addict and you can figure 1,872,000 chews a year. Translate that into terms of pressure and suction against fillings, gold inlays, cement bridges, porcelain jacket crowns and other dental work and you will understand why sometimes such repairs cannot hold up.

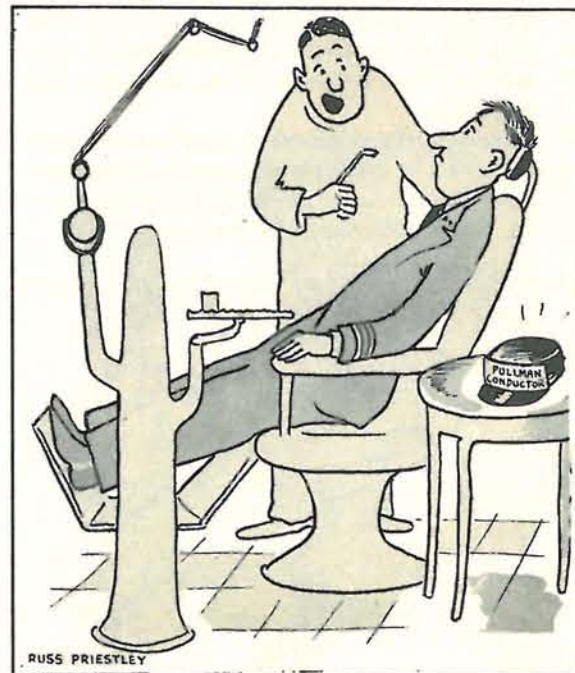
Moreover, many chewers "rest" by holding their wad of gum against the teeth. This concentration of sugar is thought by some researchers to encourage the formation of cavities.

It was William F. Semple, of Mount Vernon, Ohio, who on December 28, 1869, took out the first patent on modern chewing gum. And to think that he was a dentist, too!

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60. He must keep any promise he makes a patient; for example telephone call or delivering a piece of work.
61. He must budget his expenses. Office and personal.
62. He must delegate responsibility to those helping him and then leave them alone.
63. He must respect the value of time. For himself to keep busy, others not to be kept waiting.
64. Notifying a practice of vacation periods is good form.
65. Make financial agreements and keep them, do not simply "stall" work until patient catches up. If for any reason a patient is delinquent approach the matter in a business like way and tell them why you must hold up the work. Patients appreciate directness and may make better effort.
66. When patient finishes payment schedule write a letter of appreciation.
67. He should do well to include bite-wing X-rays with his prophylactic treatments at least once a year. (In this way he is fulfilling his duty to the patient and at the same time is relieving himself of criticism because of missing a carious area.)
68. If his own time is not completely filled he must do a reasonable amount of his own laboratory work.
69. He must analyze the location of his office in terms of the convenience of his clientele.
70. Repairs must be made promptly on equipment.
71. He should establish a supply cupboard and a want list so that necessary items are re-filled automatically.
72. He should buy in quantities thereby saving himself money.
73. As pointed out, funds from depreciation account can be invested in tooth accounts, gold, and deposit accounts, at supply houses for the purpose of earning an income within the business.
74. His fee schedule must consider the patient's ability to pay.
75. Until his income can do so, he must finance himself in all of his activity within minimum limits, not on an extravagant basis. (Law of minimum limits.)
76. His waiting room should be furnished in good taste and present his personality.
77. He should seek to save time through a study of operating methods and eliminating lost motion.

78. Those dentists who have built large practices and need help of several people must make these individuals a part of the office definitely. They must feel that they do not work for this dentist but WITH him. The one attitude is of clock watching, the other implies help and a willingness to assume a portion of the responsibility, for success or failure of a given effort.
79. Discussion of office problems with his assistant helps him to clarify his thinking and makes her feel her part in the office affairs. In addition a competent assistant will study the dentist's solution and by adding to her experience be able to deal with similar situations routinely.
80. Economies must not be instituted in the office which impair the quality of the service.
81. The dentist must appreciate all factors of a sanitary routine in every department of his establishment. If he does not his return will be materially lessened since his fee schedule will reflect what he does not render in service. The quality and the quantity are also damaged.
82. He must realize that if he does not appreciate and practice all the principles involved he cannot hope to demand the same fee as can those practitioners who are constantly on the alert.



"PERHAPS IT'D BE MORE CLEAR TO YOU IF I SAID A CAVITY IN UPPER FOUR, AND A CAVITY IN LOWER SIX."

larly gingivitis and pyorrhea; and last, but by no means least, improved procedures for restoring function and facial symmetry through oral surgery."

Dr. J. M. Wisan states: "The new developments that I expect in the near future are (1) the fluorination of water supplies in many communities and (2) wider distribution of dental services, particularly among children."

Dr. Basil G. Bibby writes: "It is inevitable that there will be revolutions in certain aspects of dental technology, which basically have changed only slowly over the past hundred years. All other technologies are using new materials and techniques. Dentistry's turn must come. Further, I anticipate, partly as a result of better control of dental caries, far greater emphasis on the treatment of the supporting structures of the teeth and an appreciation of the importance of these tissues as indices of the metabolic state of the body."

Dr. H. C. Pollock makes the single interesting prediction that the Dental Corps of the United States Army may be segregated apart from the direction of the Medical Corps and be made a unit in itself. (*Editor's note: this prediction has since become a fact.*)

Dr. Chester J. Henschel suggests the following:

Revolution in toothpastes and other dentifrices as a result of the development of ammonium-ion therapy. Use of beryllium and so forth for dental bearings and tools. Possible development of the airbrasive technique. More permanent and less toxic penicillin. Wider application of thermal control. Patients' realization that dentistry needn't hurt.

Dr. Lieber comments: "I would expect the coming decade to show remarkable strides in: Development of means for the mass prevention of caries (quoted above). Elimination of the dental drill (development of airbrasive, supersonic drill, and so forth). Opening of new fields through atomic research, use of the electron microscope, and so forth. Development of a definitive treatment for pyorrhea."

The forecasting of scientific developments is as hazardous an undertaking as any other form of prognostication — perhaps even more so. Yet the foregoing predictions probably include a fair percentage of the major developments that will occur in American dentistry during the coming decade.





# 100 Things a Dentist Must Do —

By GAYLORD JAMES, D.D.S.

## FACTORS HAVING TO DO WITH HIMSELF

1. He must cultivate a liking for people.
2. He must be punctual.
3. He must be always thinking of his patients.
4. He must never let a patient feel that his work and welfare is not important to him.
5. His personal convenience is secondary to the patient's convenience.
6. His disposition at all times must be above reproach.
7. He must be interested. To him a trifle—to the patient a tragedy.
8. He must not develop careless habits about his office during business hours. (Reading sport pages, etc.)
9. He must practise the golden rule in respect to his fellow practitioners and his patients.
10. Cultivate the habit of success through persistence. (*Marks of an Educated Man*, Chapter 10.)
11. Defining his own ideals to himself as affects his accomplishments in such a manner as to live with them constantly.
12. Accomplish through honorable means rather than by any method which would lower self-respect.
13. By being tolerant of the shortcomings of others.
14. By always trying to understand the motives of others.
15. He must be positive, not stubborn.
16. He must realize the necessity of his working when people in other fields of employment are not.
17. He cannot seclude himself from public contact.
18. He must base reasons on facts of dentistry which have been established; not upon hearsay, and figures of imagination.
19. He should not discuss one patient's shortcomings with another.
20. He should not criticize any patient to any person other than his wife or assistant. (In turn they must help him by allowing him to blow off steam and NOT repeat to others.)
21. He should take a vital interest in community affairs.
22. He should be broad-minded in all of his contacts, seeking to eliminate personalities and individual dislikes from his judgment as related to community and professional affairs, or projects.
23. He needs to be enthusiastic both in living and in his approach to every problem. Cheerfulness breeds enthusiasm, success follows success because enthusiasm is contagious. We can use contagious enthusiasm for the purpose of building better practices.
24. An absorbing hobby is a fine sedative for any disposition but it should not become so absorbing that it will "black out" the ascending star of success.
25. When doing business with others, that is, receiving goods and services from them, let us act and approach them as we would like to have others receive our efforts, seeking to be fair and keeping our arrangements. This demands respect and furnishes contacts.
26. Build confidence by action not by promise. Confidence is a state of "feeling sure" or of "placing trust." We endanger the confidence of the referring source when a new patient finds us lacking in a particular respect.
27. He must prepare his patient for services he may elect to render by explanation, before time transposes the prospect into a definite need. If this is carried out, when the need is evident it will more easily be transformed into an immediate want.

## FACTORS HAVING TO DO WITH HIS PATIENTS

28. A real appreciation of the value of the full mouth X-ray in all cases.
29. His proposals for mouth reconstruction must be clearly thought out and presented in a logical manner avoiding a stereotyped presentation which is delivered in all circumstances.
30. During such discussion if an informality is established the dentist will be rewarded by

# A Set of Resolutions for 1949

confidence from the patient which can be used to clinch his arguments.

31. It is advisable to present the best program of reconstruction which is possible for any particular case. The reasons may be given as, first education of the patient to the best of procedures as applied to his particular case and the building up in his mind of a better appreciation of dental procedures in general.
32. When presenting a plan of restoration to a patient he must avoid the too enthusiastic approach which imitates the high pressure salesman.
33. Practical psychology is a necessary part of a dentist's knowledge. Let him use it on his patients to his own advantage but on himself for theirs. *Marks of an Educated Man* can be recommended. The practice of these "marks" will improve his life in many ways.
34. A reliable manner in handling children.
35. A certain portion of his work based upon percentage of the gross amount of dentistry produced can be segregated for needy cases deserving treatment. (Preference should be given to former patients who may be experiencing difficult times, e.g., widow with children who may have been able to pay medium fees when husband was alive and working.)
36. Ascertain the patient's present appreciation of dental procedures and you can ascertain immediately your method of approach and be reasonably sure of the outcome.

## FACTORS HAVING TO DO WITH OFFICE ADMINISTRATION

37. His office must be clean.
38. He must have an assistant.
39. He should spend some of his free time training her according to his own needs.
40. Appearance of the dentist and assistant at all times in office and out.
41. He must not get the reputation of breaking appointments to suit his own pleasure, regardless.
42. He must make himself accessible.
43. He must keep adequate records of cases and services.
44. His statements must be sent promptly and correctly.
45. His correspondence must be concise, purposeful, and with an air of human understanding, thus in his absence presenting himself.
46. While in his office he must keep busy.
47. He must organize a recall system and see to it, it is used as a routine.
48. By setting up and working a depreciation account he assures his establishment against the threat of "not being modern."
49. His fee must have reasonable basis not by how much the traffic will bear.
50. By setting up a definite budget for any current year based upon figures of other years he assures himself of peace of mind in respect to finances.
51. A system for paying for dental services by the month.
52. Recording a charge for each service and discounting for various reasons will show him where his leaks are. He must realize his overhead cost is related to the gross amount of dentistry produced.
53. Suggested contacts with physicians give him a reputation for thoroughness.
54. Express his appreciation for a referred patient. (Phone call, letter, friendly greeting.)
55. Estimate all cases thoroughly.
56. On larger cases record conversations in writing for future reference and patient's understanding.
57. Segregate personal affairs from office affairs.
58. Pay himself a definite salary based upon average from the figures of other years.
59. Know credit ratings on larger cases.

